ARMY RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

February 2006

BUDGET ACTIVITY	PE NUMBER AND TITLE
6 - Management support	**0604258A - TARGET SYSTEMS DEVELOPMENT**

COST (In Thousands)		FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate
Total Program Element (PE) Cost		14882	11784	10928	11137	11163	11479	9184
238	AERIAL TARGETS	10659	8239	7062	6413	6422	6604	5261
459	GROUND TARGETS	4223	3545	3866	4724	4741	4875	3923

A. Mission Description and Budget Item Justification: This program funds aerial and ground target hardware and software development, maintenance, and upgrades. The overall objective is to ensure validation of weapon system accuracy and reliability by developing aerial and ground targets essential for test and evaluation (T&E). These targets are economical and expendable, remotely controlled or stationary, and often destroyed in use. The Army is the Tri-Service lead under Reliance for providing rotary wing, mobile ground, and designated targets for T&E. The Army executes development of some Service-peculiar target requirements in support of quality assurance, lot acceptance, and training and continues development of Service-peculiar and on-going target materiel upgrades to maintain continuity with current weapons technology and trends in modern and evolving Army weapons.

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B. Program Change Summary	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2006)	13370	10855	10542
Current BES/President's Budget (FY 2007)	14882	11784	10928
Total Adjustments	1512	929	386
Congressional Program Reductions		-52	
Congressional Rescissions		-119	
Congressional Increases		1100	
Reprogrammings	1512		
SBIR/STTR Transfer			
Adjustments to Budget Years			386

Change Summary Explanation:
FY 2005: Reprogramming used to fund the development of tactical-class threat-representative Unmanned Aerial Vehicle targets, virtual targets, and the maintenance of the Reliance Rotary Wing target program. These targets are critical in reducing program technical risk and facilitate the development and fielding of the Army Blue systems.
FY 2006: Congressional Plus Up ($1,100) for Unmanned Aerial Vehicles.

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6 - Management support	**0604258A - TARGET SYSTEMS DEVELOPMENT**	**238**

COST (In Thousands)	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate
238 AERIAL TARGETS	10659	8239	7062	6413	6422	6604	5261

A. Mission Description and Budget Item Justification: Aerial Targets support Army Transformation and the Global War on Terrorism by providing for development, acquisition, operation, storage, update, and maintenance of realistic surrogate or acquired threat high-performance, multi-spectral aerial targets and development of virtual target computer models of aerial targets. Modern weapons require test, evaluation, and training using threat representative aerial targets to assess their effectiveness on the battlefield. This program encompasses a family of rotary and fixed-wing targets; full-scale, miniature and subscale targets; virtual targets; ancillary devices; and their control systems. These products are required to adequately stress weapon systems undergoing test and evaluation (T&E). In order to stress systems under test and evaluation, aerial targets must have flight characteristics, signatures, and other performance factors that emulate the modern threat. This includes long-range planning to determine future target needs and development of coordinated requirement documents; the management of target research, development, test and evaluation process; execution of the validation process to ensure that surrogate targets adequately represent the threat; development and acquisition of surrogate and acquired targets; and continuing maintenance, storage, and development/enhancements/update via engineering services of the developed and acquired threat targets to ensure availability for the T&E customer. The US Army is the Reliance lead for rotary wing targets and the Tri-Service lead for procurement and enhancement of the MQM-107 fixed wing target and is slated to become the Reliance Lead for towed target developments beginning in 2006.

Accomplishments/Planned Program	FY 2005	FY 2006	FY 2007
Continues management and sustainment of more than 20 Army (Reliance Lead) Rotary Wing Targets, including updates for obsolescence, maintenance, and safety to support T&E programs such as Medium Extended Air Defense System (MEADS), Surface Launched Advanced Medium Range Air to Air Missile (SLAMRAAM), and others.	734	346	580
Provides Research, Development, Test and Evaluation (RDT&E) portion of funds needed to update aging MQM-107 equipment to overcome obsolescence for spare and repair parts, and to maintain equipment and documentation for safe operations supporting T&E programs such as Patriot, Stinger, Joint Land Attack Cruise Missile Defense Elevated Netted Sensors (JLENS), MEADS, SLAMRAAM, and classified programs for Army and Tri-Service customers. FY 2005 began the process to acquire replacements for expended targets, which will include development of updated component/subsystem replacements of no-longer-available, obsolete equipment and systems to reduce operational cost.	1644	2445	2320
Completes redesign and testing of upgraded Target Tracking Control System (TTCS) to new design. Complete testing of upgraded initial test sets. Continue to support current TTCS to maintain operations until all TTCSs are upgraded. Continue management of Targets Management Initiative to develop and integrate a set of Common Digital Architecture control equipment into aerial targets to improve performance and reduce operating costs. Completes upgrade of remaining TTCS to new configuration at a rate of 2-3 per year and begins sustainment. Also develops/improves integrated test set, operator displays, software performance enhancements, and documentation of design. This will provide support to programs such as Patriot, SLAMRAAM, JLENS, MEADS, and others.	1979	692	670
Continues development, enhancement, maintenance, and storage for all RDT&E aerial targets, towed targets, and ancillary devices. Continues development and testing of Low Cost Towed target systems (Cruise Missile Tow Target, Reduced Radar Tow Target, and the Special Low Altitude Tow Target) emulating current threats at a very low cost to Patriot, JLENS and classified customers. FY 2005 also	796	751	758

integrated tandem tow technology into large-scale towed targets to support air defense weapons T&E (e.g. Patriot). It is anticipated that signature modifications and/or performance enhancements to these targets will be required into the FY 2008 timeframe.			
Integrated Avionics Program incorporates Central Test and Evaluation Investment Program (CTEIP) Common Digital Architecture into aerial targets controlled by TTCS, improving reliability, maintainability, and target performance while reducing operational cost. Provides RDT&E funding to initialize production and provide maintainer and operator training, and finalize technical documentation. The customer will provide funding and training for production units.	1252	859	130
Funding supports research and development of evolving Army and DoD simulation standards and evolving implementation techniques; fabricates additional simulation target models of airplanes, helicopters, missiles, and unmanned aerial vehicles in commonly used model formats; develops simulation target model infrared and radar frequency signature models, and provides archiving and distribution of simulation target models to simulation developers throughout the Army and DoD test and evaluation communities. Simulation target models are employed to facilitate simulations for both Developmental and Operational Testing (test planning, test rehearsal, post-test analysis, hardware-in-the-loop testing, and execution of test events that are too costly or difficult to be conducted under actual field conditions). These models will be used by Developmental Test Command's (DTC) simulations, Operational Test Command's (OTC) Analytical Simulation and Instrumentation Suite (OASIS), and multiple weapon systems' T&E (e.g. Future Combat System, Patriot, SBCT (Stryker), MEADS, etc.). These models are on-line and available to all T&E simulation developers.	635	872	771
Develops, tests and provides generic, tactical class Unmanned Aerial Vehicle (UAV) targets to provide threat representative support for MEADS/SLAMRAAM testing in FY06-08 and MEADS testing in future years. Provides approximately 20 air vehicles for developmental testing(DT) and initial targets fleet, ground support equipment, and maintainer and operator training. TTCS will be utilized for target control. This effort provides significant cost avoidances over using real UAVs for T&E targets.	789	1174	741
Initiates Airborne Control System for Rotary Wing targets, incorporates the Central Test and Evaluation Investment Program(CTEIP) Common Digital Architecture into aerial rotary wing targets controlled by TTCS; improving reliability, maintainability, and target performance while reducing operational cost.	0	0	1092
Developed software to achieve Improved Low Altitude Threat Simulation Control of aerial targets through use of a digital terrain database and Global Positioning System (GPS) altitude data using the Target Tracking Control System UHF (TTCSU) and the Drone Formation Control System (DFCS). This allows single or multiple target formations to be flown in more threat representative presentations than are now possible with existing hardware and software systems.	2830	0	0
Funding supports development and design of current in-flight icing protection shortfalls with low-weight,low-cost,low-power options made specifically for installation on current and future UAV configurations.	0	1100	0
Total	10659	8239	7062

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COST (In Thousands)	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate
459 GROUND TARGETS	4223	3545	3866	4724	4741	4875	3923

A. Mission Description and Budget Item Justification: This program funds Army efforts to support test and evaluation (T&E) of advanced weapon systems and supports Army Transformation by developing surrogates, acquiring foreign equipment and developing virtual target computer models of ground vehicle targets. These products are required to adequately stress weapon systems undergoing T&E. This tasking includes long-range planning to determine future target needs and development of coordinated requirement documents; the centralized management of the ground target research, development, test and evaluation processes; execution of the validation process; acquisition of foreign equipment; and continuing maintenance, storage, and development/enhancement/update via engineering services of developed and acquired targets to ensure availability for T&E customers. This program also manages use of current assets and operates centralized spare parts program. The US Army is the Tri-Service lead for providing mobile ground targets for T&E.

Accomplishments/Planned Program	FY 2005	FY 2006	FY 2007
FY 2005-2007 Funds management and oversight of five Primary Operating Centers to include operation, storage, maintenance, and configuration management for the repair of 164 active and 186 inactive Mobile Ground Target vehicles, and acquisition of new material and spare parts. Supports users such as Future Combat Systems(FCS), Armed Reconnaissance Helicopter (ARH), Guided Multiple Launch Rocket System (GMLRS), Excalibur, Mid-Range Munition (MRM), Non-Line-of-Sight Launch System (NLOS-LS), Precision Guided Mortar Munition (PGMM), and others.	2159	2093	2075
FY 2005-2007 Supports research and development of evolving Army and DOD simulation standards and evolving implementation techniques; fabricates additional simulation target models of wheeled and tracked ground vehicles in commonly used model formats; develops simulation target model infrared (IR) and radio frequency (RF) signature models support vertification and validation of models, and provides archiving and distribution of simulation target models to simulation developers throughout the Army and DOD T&E communities. Simulation target models are employed to facilitate simulations for both developmental testing (DT) and operational testing(OT)(test planning, test rehearsal, post-test analysis, hardware-in-the-loop testing, and execution of test events that are too costly or difficult to be conducted under actual field conditions). These models will be used by DTC's simulations, OTC's Analytical Simulation and Instrumentation Suite (OASIS), and multiple weapon systems' T&E (e.g. Future Combat System [FCS], Excalibur, Precision Guided Mortar Munition[PGMM], Mid Range Munition[MRM], etc.). These models are available on-line to all T&E simulation developers.	1206	1333	1476
FY 2005 Fielded a very low cost (less than 10% of cost of the actual) Main Battle Tank (MBT), Russian MBT Surrogate, which will emulate the visual, infrared, and radio frequency signatures to support T&E (e.g., ARH, FCS, NLOS-LS, Compact Kinetic Energy Missile(CKEM) and others).	443	0	0
FY 2005-2007 Manages Mobile Ground Target Surrogates development effort. Supplements the Mobile Ground Targets threat fleet with up to date threat representatives surrogates that emulate the visual, infrared and radio frequency signatures to support T&E (e.g. ARH, FCS, NLOS-LS, CKEM, and others).	415	119	315
Total	4223	3545	3866